



SEQUENCE LISTING

<110> LADNER, ROBERT C.

<120> FOCUSED LIBRARIES OF GENETIC PACKAGES

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<140> 10/026,925

<141> 2001-12-18

<160> 99

<170> PatentIn Ver. 2.1

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CDR1 vector

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<223> Any amino acid except Cys

<220>

<221> MOD_RES

<222> (14)

<223> Any amino acid except Cys

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1 5 10

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<211> 17

<212> PRT

<213> Artificial Sequence

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CDR2 vector

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<223> Tyr, Arg, Trp, Val Gly or Ser

<220>

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<222> (3)

<223> Tyr, Arg, Trp, Val, Gly or Ser

<220>
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 <222> (4)
 <223> Pro, Ser or Gly

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 <222> (8)
 <223> Any amino acid except Cys

<220>
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<400> 2
 Xaa Ile Xaa Xaa Ser Gly Gly Xaa Thr Xaa Tyr Ala Asp Ser Val Lys
 1 5 10 15

Gly

<210> 3
 <211> 17
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<220>
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 CDR2 vector

<220>
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<220>
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 <222> (3)
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<220>
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 <223> Any amino acid except Cys

<220>
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 <222> (7)
 <223> Ser, Gly, Asp or Asn

<220>
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 <222> (8)..(10)
 <223> Any amino acid except Cys

<400> 3
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 1 5 10 15

Gly

<210> 4
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<220>
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<220>
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 1 5 10 15

<210> 5
 <211> 19
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<220>
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 CDR2 vector

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<400> 5
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 1 5 10 15

Val Lys Gly

<210> 6
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
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 CDR3 vector

<220>
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<220>
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 <223> Any amino acid except Cys

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<220>
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 CDR3 vector

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 <223> Lys or Arg

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 <222> (6)..(11)
 <223> Any amino acid except Cys

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 1 5 10 15

Gly

<210> 8
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 CDR3 vector

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Tyr Trp Gly

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 CDR3 vector

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<220>
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Phe Asp Tyr Trp Gly
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 CDR3 vector

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 <223> Any amino acid except Cys

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Tyr Phe Asp Tyr Trp Gly
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 <213> Artificial Sequence

<220>
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 CDR3 vector

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<220>
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<400> 11
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 1 5 10 15

Xaa Xaa Tyr Phe Asp Tyr Trp Gly
 20

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<220>
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 CDR3 vector

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 <223> Any amino acid except Cys

<400> 12
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 1 5 10 15

Xaa Xaa Xaa Tyr Phe Asp Tyr Trp Gly
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<210> 13
 <211> 26
 <212> PRT
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<220>
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 CDR3 vector

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<400> 13

Tyr Tyr Cys Ala Arg Xaa Xaa Xaa Xaa Tyr Cys Xaa Xaa Xaa Xaa Cys
 1 5 10 15

Tyr Xaa Xaa Xaa Tyr Phe Asp Tyr Trp Gly
 20 25

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<220>

<223> Description of Artificial Sequence: Kappa light
 chain CDR1 vector

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<223> Description of Artificial Sequence: Kappa light
 chain CDR1 vector

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<222> (7)..(9)

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<223> Description of Artificial Sequence: Kappa light chain CDR3 vector

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<220>

<221> MOD_RES

<222> (4)..(6)

<223> Any amino acid except Cys

<220>

<221> MOD_RES

<222> (8)

<223> Any amino acid except Cys

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Gln Gln Xaa Xaa Xaa Xaa Pro Xaa Thr
1 5

<210> 17

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<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Kappa light chain CDR3 vector

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<220>

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<222> (4)

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<222> (5)..(6)
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 Gln Gln Xaa Xaa Xaa Xaa Pro Pro Xaa Thr
 1 5 10

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 <213> Artificial Sequence

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 chain CDR1 vector

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<220>
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 1 5 10

<210> 19
 <211> 10
 <212> PRT
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<220>
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 chain CDR3 vector

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 <221> MOD_RES

<222> (4)..(5)
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 <222> (7)..(8)
 <223> Any amino acid except Cys

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 1 5 10

<210> 20
 <211> 14
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 <213> Homo sapiens

<400> 20
 Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Ser Ser
 1 5 10

<210> 21
 <211> 15
 <212> PRT
 <213> Homo sapiens

<400> 21
 Ala Phe Asp Ile Trp Gly Gln Gly Thr Met Val Thr Val Ser Ser
 1 5 10 15

<210> 22
 <211> 5
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<220>
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<400> 22
 Tyr Tyr Cys Ala Arg
 1 5

<210> 23
 <211> 323
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<220>
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 vector with CDR1/2 diversity

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 <222> (99)..(101)
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 <222> (105)..(107)
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 <222> (111)..(113)
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 <222> (156)..(158)
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 <221> modified_base
 <222> (162)..(167)
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 <222> (177)..(179)
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 <222> (183)..(185)
 <223> a, c, t, g, other or unknown

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 Ala Met Ala Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln
 1 5 10 15
 cct ggt ggt tct tta cgt ctt tct tgc gct gct tcc gga ttc act ttc 95
 Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe
 20 25 30
 tct nnn tac nnn atg nnn tgg gtt cgc caa gct cct ggt aaa ggt ttg 143
 Ser Xaa Tyr Xaa Met Xaa Trp Val Arg Gln Ala Pro Gly Lys Gly Leu
 35 40 45

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gag tgg gtt tct nnn atc nnn nnn tct ggt ggc nnn act nnn tat gct 191
Glu Trp Val Ser Xaa Ile Xaa Xaa Ser Gly Gly Xaa Thr Xaa Tyr Ala
    50                      55                      60

gac tcc gtt aaa ggt cgc ttc act atc tct aga gac aac tct aag aat 239
Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn
    65                      70                      75                      80

act ctc tac ttg cag atg aac agc tta agg gct gag gac acc gct gtc 287
Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val
                      85                      90                      95

tac tac tgc gcc aaa gac tat gaa ggt act ggt tat 323
Tyr Tyr Cys Ala Lys Asp Tyr Glu Gly Thr Gly Tyr
    100                      105

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<210> 24

<211> 108

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<223> Description of Artificial Sequence: 3-23: JH4
vector with CDR1/2 diversity

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<221> MOD_RES

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<220>

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<222> (62)

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<400> 24

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Pro	Gly	Gly	Ser	Leu	Arg	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Thr	Phe
			20					25					30		

Ser	Xaa	Tyr	Xaa	Met	Xaa	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu
		35					40					45			

Glu	Trp	Val	Ser	Xaa	Ile	Xaa	Xaa	Ser	Gly	Gly	Xaa	Thr	Xaa	Tyr	Ala
	50					55					60				

Asp	Ser	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asn	Ser	Lys	Asn
65					70					75					80

Thr	Leu	Tyr	Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Glu	Asp	Thr	Ala	Val
				85					90					95	

Tyr	Tyr	Cys	Ala	Lys	Asp	Tyr	Glu	Gly	Thr	Gly	Tyr
		100						105			

<210> 25

<211> 45

<212> DNA

<213> Homo sapiens

<220>

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<222> (1)..(45)

<400> 25

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Tyr	Phe	Asp	Tyr	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser
1				5					10				15	

45

<210> 26

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<212> PRT

<213> Homo sapiens

<400> 26

Tyr	Phe	Asp	Tyr	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser
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<210> 27

<211> 55

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<213> Artificial Sequence

<220>
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<220>
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 <223> a, c, t or g

<220>
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 <222> (27)..(29)
 <223> a, c, t or g

<220>
 <221> modified_base
 <222> (33)..(35)
 <223> a, c, t or g

<400> 27
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<210> 28
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<220>
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<400> 28
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<210> 29
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
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 oligonucleotide

<400> 29
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<210> 30
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<220>
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 <223> a, c, t or g

<220>
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 <222> (39)..(41)
 <223> a, c, t or g

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 g 61

<210> 31
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<220>
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 oligonucleotide

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 <222> (42)..(50)
 <223> a, c, t or g

<220>
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 <222> (60)..(62)
 <223> a, c, t or g

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 nntgggttcg ccaagtcct gg 82

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<220>
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<220>
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 <222> (25)..(28)
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 <223> a, c, t or g

<220>
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 <222> (40)..(42)
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<220>
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 <222> (46)..(48)
 <223> a, c, t or g

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 gttaaagg 68

<210> 33
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<220>
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<220>
 <223> Description of Artificial Sequence: Synthetic
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<210> 35
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<220>
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<222> (19)..(21)
 <223> a, c, t or g

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 <223> a, c, t or g

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 <222> (39)..(48)
 <223> a, c, t or g

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 gttaaagg 68

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<220>
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 <222> (26)..(33)
 <223> a, c, t or g

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 <222> (39)..(45)
 <223> a, c, t or g

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 aaggg 65

<210> 37
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 <212> DNA
 <213> Artificial Sequence

<220>
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<220>
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 oligonucleotide

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 <222> (52)..(54)
 <223> a, c, t or g

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 gcttcggtta aggg 74

<210> 39
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<220>
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 oligonucleotide

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<210> 40
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 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

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<210> 41
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<220>
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<210> 42
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<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

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<210> 43
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<212> DNA
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<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 43
ggtaccctgg tcacctcgct ccacc 25

<210> 44
<211> 58
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<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<220>
<221> modified_base
<222> (23)..(35)
<223> a, c, t or g

<400> 44
ccgctgtcta ctactgcgcc mrnnnnnnnnn nnnntactt cgattactgg ggccaagg 58

<210> 45
<211> 64
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<220>
<221> modified_base
<222> (23)..(41)
<223> a, c, t or g

<400> 45
ccgctgtcta ctactgcgcc mrnnnnnnnnn nnnnnnnnnn ntacttcgat tactggggcc 60
aagg 64

<210> 46
<211> 70
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<220>
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<222> (23)..(47)
<223> a, c, t or g

<400> 46
ccgctgtcta ctactgcgcc mrnnnnnnnnn nnnnnnnnnn nnnnnntac ttcgattact 60
ggggccaagg 70

<210> 47
<211> 76
<212> DNA
<213> Artificial Sequence

<220>
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oligonucleotide

<220>
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<222> (24)..(32)
<223> a, c, t or g

<220>
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<222> (38)
 <223> a, c, t or g

<220>
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 <222> (45)..(53)
 <223> a, c, t or g

<400> 47
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 attactgggg ccaagg 76

<210> 48
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<220>
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<220>
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 <222> (23)..(32)
 <223> a, c, t or g

<220>
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 <222> (42)..(47)
 <223> a, c, t or g

<220>
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 <222> (54)..(56)
 <223> a, c, t or g

<400> 48
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 tcgattactg gggccaagg 79

<210> 49
 <211> 85
 <212> DNA
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<220>
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 <222> (23)..(29)
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<222> (33)..(35)
 <223> a, c, t or g

<220>
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 <222> (48)..(62)
 <223> a, c, t or g

<400> 49
 ccgctgtcta ctactgcgcc mrnnnnnnnt ctnnnactat cttegggtnnn nnnnnnnnnn 60
 nntacttcca ttactggggc caagg 85

<210> 50
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<220>
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 <222> (24)..(32)
 <223> a, c, t or g

<220>
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 <222> (41)
 <223> a, c, t or g

<220>
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 <222> (47)
 <223> a, c, t or g

<220>
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 <222> (50)
 <223> a, c, t or g

<220>
 <221> modified_base
 <222> (57)..(65)
 <223> a, c, t or g

<400> 50
 ccgctgtcta ctactgcgcc cgtnnnnnnn nntattacgr ntctdsndsn tactatnnnn 60
 nnnntactt cgattactgg ggccaagg 88

<210> 51
 <211> 91
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 <213> Artificial Sequence

<220>
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 oligonucleotide

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 <222> (24)..(35)
 <223> a, c, t or g

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 <222> (44)
 <223> a, c, t or g

<220>
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 <222> (47)
 <223> a, c, t or g

<220>
 <221> modified_base
 <222> (50)..(53)
 <223> a, c, t or g

<220>
 <221> modified_base
 <222> (60)..(68)
 <223> a, c, t or g

<400> 51
 ccgctgtcta ctactgcgcc cgtnnnnnnn nnnntattg cdsndsnrvn nnntgctatn 60
 nnnnnnnnta cttcgattac tggggccaag g 91

<210> 52
 <211> 242
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: 3-23: JH4
 vector with stuffers

<220>
 <221> CDS
 <222> (3)..(107)

<220>
 <221> CDS
 <222> (114)..(155)

<220>
 <221> CDS
 <222> (159)..(164)

<220>
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 <222> (168)..(227)

<400> 52
 cc atg gcc gaa gtt caa ttg tta gag tct ggt ggc ggt ctt gtt cag 47
 Ala Met Ala Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln
 1 5 10 15
 cct ggt ggt tct tta cgt ctt tct tgc gct gct tcc gga ttc act ttc 95
 Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe
 20 25 30
 tct tgc tac gct tagtaa tgg gtt cgc caa gct cct ggt aaa ggt ttg 143
 Ser Ser Tyr Ala Trp Val Arg Gln Ala Pro Gly Lys Gly Leu
 35 40 45
 gag tgg gtt tct taa cct agg tag act atc tct aga gac aac tct aag 191
 Glu Trp Val Ser Pro Arg Thr Ile Ser Arg Asp Asn Ser Lys
 50 55 60
 aat act ctc tac ttg cag atg aac agc tta agg gct tagtaaaggc cttaa 242
 Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala
 65 70

<210> 53
 <211> 72
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: 3-23: JH4
 vector with stuffers

<400> 53
 Ala Met Ala Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln
 1 5 10 15
 Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe
 20 25 30
 Ser Ser Tyr Ala Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp
 35 40 45
 Val Ser Pro Arg Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 50 55 60
 Leu Gln Met Asn Ser Leu Arg Ala
 65 70

<210> 54
 <211> 952
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (206)..(907)

cag aaa cct ggt cag gcg ccg cgt tta ctt att tat nnn gct tct nnn	424
Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile Tyr Xaa Ala Ser Xaa	
60 65 70	
cgc nnn nnn ggg atc ccg gac cgt ttc tct ggc tct ggt tca ggt act	472
Arg Xaa Xaa Gly Ile Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr	
75 80 85	
gac ttt acc ctt act att tct aga ttg gaa cct gaa gac ttc gct gtt	520
Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu Pro Glu Asp Phe Ala Val	
90 95 100 105	
tat tat tgc caa cag nnn nnn nnn nnn cct nnn act ttc ggt caa ggt	568
Tyr Tyr Cys Gln Gln Xaa Xaa Xaa Xaa Pro Xaa Thr Phe Gly Gln Gly	
110 115 120	
acc aag gtt gaa atc aag cgt acg gtt gcc gct cct agt gtg ttt atc	616
Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile	
125 130 135	
ttt cct cct tct gac gaa caa ttg aag tca ggt act gct tct gtc gta	664
Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val	
140 145 150	
tgt ttg ctc aac aat ttc tac cct cgt gaa gct aaa gtt cag tgg aaa	712
Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys	
155 160 165	
gtc gat aac gcg ttg cag tcg ggt aac agt caa gaa tcc gtc act gaa	760
Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu	
170 175 180 185	
cag gat agt aag gac tct acc tac tct ttg tcc tct act ctt act tta	808
Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu	
190 195 200	
tca aag gct gat tat gag aag cat aag gtc tat gct tgc gaa gtt acc	856
Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr	
205 210 215	
cac cag ggt ctg agc tcc cct gtt acc aaa agt ttc aac cgt ggt gaa	904
His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu	
220 225 230	
tgc taatagggcg cgccacgcat ctctaagcgg ccgcaacagg aggag	952
Cys	

<210> 55

<211> 234

<212> PRT

<213> Homo sapiens

<220>

<221> MOD_RES

<222> (47)

<223> Any amino acid

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 <222> (49)..(52)
 <223> Any amino acid

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 <222> (75)..(76)
 <223> Any amino acid

<220>
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 <222> (111)..(114)
 <223> Any amino acid

<220>
 <221> MOD_RES
 <222> (116)
 <223> Any amino acid

<400> 55

Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser
 1 5 10 15

His Ser Ala Gln Ser Val Leu Thr Gln Ser Pro Gly Thr Leu Ser Leu
 20 25 30

Ser Pro Gly Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Xaa Val
 35 40 45

Xaa Xaa Xaa Xaa Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro
 50 55 60

Arg Leu Leu Ile Tyr Xaa Ala Ser Xaa Arg Xaa Xaa Gly Ile Pro Asp
 65 70 75 80

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser
 85 90 95

Arg Leu Glu Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Xaa Xaa
 100 105 110

Xaa Xaa Pro Xaa Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
 115 120 125

Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln
 130 135 140

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Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr
145                      150                      155                      160

Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser
                      165                      170                      175

Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr
                      180                      185                      190

Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys
                      195                      200                      205

His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro
210                      215                      220

Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
225                      230

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<210> 56
<211> 732
<212> DNA
<213> Homo sapiens

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<222> (30)..(686)

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<222> (108)..(110)
<223> a, c, t, g, other or unknown

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<220>
<221> modified_base
<222> (117)..(119)
<223> a, c, t, g, other or unknown

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<220>
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<222> (126)..(137)
<223> a, c, t, g, other or unknown

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<220>
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<222> (189)..(200)
<223> a, c, t, g, other or unknown

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<220>
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<222> (306)..(320)
<223> a, c, t, g, other or unknown

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<220>
<221> modified_base
<222> (324)..(335)
<223> a, c, t, g, other or unknown

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<400> 56

gaggaccatt gggccctta ctccgtgac	agt gca caa tcc gct ctc act cag	53
	Ser Ala Gln Ser Ala Leu Thr Gln	
	1 5	
cct gct agc gtt tcc ggg tca cct ggt caa agt atc act att tct tgt	101	
Pro Ala Ser Val Ser Gly Ser Pro Gly Gln Ser Ile Thr Ile Ser Cys		
	10 15 20	
aca ggt nnn tct tct nnn gtt ggc nnn nnn nnn nnn gtt tct tgg tat	149	
Thr Gly Xaa Ser Ser Xaa Val Gly Xaa Xaa Xaa Xaa Val Ser Trp Tyr		
	25 30 35 40	
caa caa cac ccg ggc aag gcg ccg aag ttg atg atc tac nnn nnn nnn	197	
Gln Gln His Pro Gly Lys Ala Pro Lys Leu Met Ile Tyr Xaa Xaa Xaa		
	45 50 55	
nnn cgt cct tct ggt gtt agc aat cgt ttc tcc gga tct aaa tcc ggt	245	
Xaa Arg Pro Ser Gly Val Ser Asn Arg Phe Ser Gly Ser Lys Ser Gly		
	60 65 70	
aat acc gca agc tta act atc tct ggt ctg cag gct gaa gac gag gct	293	
Asn Thr Ala Ser Leu Thr Ile Ser Gly Leu Gln Ala Glu Asp Glu Ala		
	75 80 85	
gac tac tat tgt nnn nnn nnn nnn nnn tct nnn nnn nnn nnn gtc ttc	341	
Asp Tyr Tyr Cys Xaa Xaa Xaa Xaa Xaa Ser Xaa Xaa Xaa Xaa Val Phe		
	90 95 100	
ggc ggt ggt acc aaa ctt act gtc ctc ggt caa cct aag gct gct cct	389	
Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gln Pro Lys Ala Ala Pro		
	105 110 115 120	
tcc gtt act ctc ttc cct cct agt tct gaa gag ctt caa gct aac aag	437	
Ser Val Thr Leu Phe Pro Pro Ser Ser Glu Glu Leu Gln Ala Asn Lys		
	125 130 135	
gct act ctt gtt tgc ttg atc agt gac ttt tat cct ggt gct gtt act	485	
Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr Pro Gly Ala Val Thr		
	140 145 150	
gtc gct tgg aaa gcc gat tct tct cct gtt aaa gct ggt gtt gag acg	533	
Val Ala Trp Lys Ala Asp Ser Ser Pro Val Lys Ala Gly Val Glu Thr		
	155 160 165	
acc act cct tct aaa caa tct aac aat aag tac gct gcg agc tct tat	581	
Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala Ala Ser Ser Tyr		
	170 175 180	
ctt tct ctc acc cct gaa caa tgg aag tct cat aaa tcc tat tcc tgt	629	
Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His Lys Ser Tyr Ser Cys		
	185 190 195 200	
caa gtt act cat gaa ggt tct acc gtt gaa aag act gtt gcc cct act	677	
Gln Val Thr His Glu Gly Ser Thr Val Glu Lys Thr Val Ala Pro Thr		
	205 210 215	

gag tgt tct tagtgaggcg cgccaacgat gttcaaggcg gccgcaacag gaggag 732
 Glu Cys Ser

<210> 57
 <211> 219
 <212> PRT
 <213> Homo sapiens

<220>
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 <222> (27)
 <223> Any amino acid

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 <222> (33)..(36)
 <223> Any amino acid

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 <222> (54)..(57)
 <223> Any amino acid

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 <222> (93)..(97)
 <223> Any amino acid

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 <222> (99)..(102)
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<400> 57
 Ser Ala Gln Ser Ala Leu Thr Gln Pro Ala Ser Val Ser Gly Ser Pro
 1 5 10 15
 Gly Gln Ser Ile Thr Ile Ser Cys Thr Gly Xaa Ser Ser Xaa Val Gly
 20 25 30
 Xaa Xaa Xaa Xaa Val Ser Trp Tyr Gln Gln His Pro Gly Lys Ala Pro
 35 40 45
 Lys Leu Met Ile Tyr Xaa Xaa Xaa Xaa Arg Pro Ser Gly Val Ser Asn
 50 55 60
 Arg Phe Ser Gly Ser Lys Ser Gly Asn Thr Ala Ser Leu Thr Ile Ser
 65 70 75 80
 Gly Leu Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Xaa Xaa Xaa Xaa
 85 90 95

Xaa Ser Xaa Xaa Xaa Xaa Val Phe Gly Gly Gly Thr Lys Leu Thr Val
 100 105 110
 Leu Gly Gln Pro Lys Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser
 115 120 125
 Ser Glu Glu Leu Gln Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser
 130 135 140
 Asp Phe Tyr Pro Gly Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser
 145 150 155 160
 Pro Val Lys Ala Gly Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn
 165 170 175
 Asn Lys Tyr Ala Ala Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp
 180 185 190
 Lys Ser His Lys Ser Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr
 195 200 205
 Val Glu Lys Thr Val Ala Pro Thr Glu Cys Ser
 210 215

<210> 58

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 58

gctctggtca acttaagggc tgagg

25

<210> 59

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 59

gctctggtca acttaagggc tgaggacacc gctgtctact actgcgcc

48

<210> 60

<211> 46

<212> DNA

<213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 60
 tacttcgatt acttggggcca aggtaccctg gtcacctcgc tccacc 46

<210> 61
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 61
 ggtaccctgg tcacctcgct ccacc 25

<210> 62
 <211> 56
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 62
 ggtctcagtt gctaagcccg ggtgaacgtg ctaccttaag ttgccgtgct tcccag 56

<210> 63
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 63
 ggtctcagtt gctaagcccg ggtg 24

<210> 64
 <211> 45
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 64
 cttgcttggt atcaacagaa acctgggtcag gcgccaagtc gtgtc 45

<210> 65
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 65
 cctggtcagg cgccaagtcg tgtc

24

<210> 66
 <211> 65
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<220>

<221> modified_base
 <222> (28)..(30)
 <223> a, c, t or g

<220>

<221> modified_base
 <222> (34)..(42)
 <223> a, c, t or g

<400> 66
 gctaccttaa gttgccgtgc ttcccagnnn gttnnnnnnn nncttgcttg gatatcaacag 60
 aaacc 65

<210> 67
 <211> 68
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<220>

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 <223> a, c, t or g

<220>

<221> modified_base
 <222> (34)..(45)
 <223> a, c, t or g

<400> 67
 gctaccttaa gttgccgtgc ttcccagnnn gttnnnnnnn nnnnncttgc ttggtatcaa 60
 cagaaacc 68

<210> 68
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 68
 cacgagtcct acctggtcag gc 22

<210> 69
 <211> 41
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 69
 cacgagtcct acctggtcag gcgccgcgtt tacttattta t 41

<210> 70
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 <212> DNA
 <213> Artificial Sequence

<220>
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 oligonucleotide

<400> 70
 gaccgtttct ctggttctca cc 22

<210> 71
 <211> 76
 <212> DNA
 <213> Artificial Sequence

<220>
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 oligonucleotide

<220>
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 <223> a, c, t or g

<220>
 <221> modified_base
 <222> (34)..(36)
 <223> a, c, t or g

<220>
 <221> modified_base
 <222> (40)..(45)
 <223> a, c, t or g

<400> 71
 caggcgccgc gtttacttat ttatnnngct tctnnncgc nnnnngggat cccggaccgt 60
 ttctctggtt ctcacc 76

<210> 72
 <211> 53
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 72
 gacgagtcct tctagattgg aacctgaaga cttcgctggtt tattattgcc aac 53

<210> 73
 <211> 50
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 73
 actttcggtc aaggtaccaa ggttgaaatc aagcgtagct cacaggtgag 50

<210> 74
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 74
 gaaatcaagc gtacgtcaca ggtgag 26

<210> 75
 <211> 70
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<220>
 <221> modified_base
 <222> (28)..(39)
 <223> a, c, t or g

<220>
 <221> modified_base
 <222> (43)..(45)
 <223> a, c, t or g

<400> 75
 gacttcgctg tttattattg ccaacagnnn nnnnnnnhnc ctnnnacttt cggtcaaggt 60
 accaaggttg 70

<210> 76
 <211> 67
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<220>
 <221> modified_base
 <222> (28)..(42)
 <223> a, c, t or g

<400> 76
 gacttcgctg tttattattg ccaacagnnn nnnnnnnnnn nncctttcgg tcaaggtacc 60
 aaggttg 67

<210> 77
 <211> 73
 <212> DNA
 <213> Artificial Sequence

<220>
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 oligonucleotide

<220>
 <221> modified_base
 <222> (28)..(39)
 <223> a, c, t or g

<220>
 <221> modified_base
 <222> (46)..(48)
 <223> a, c, t or g

<400> 77
gacttcgctg tttattattg ccaacagnnn nnnnnnnnnc ctctnnnac ttctgggtcaa 60
ggtaccaagg ttg 73

<210> 78
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 78
gacgagtcct ggtcacctgg t 21

<210> 79
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 79
gacgagtcct ggtcacctgg tcaaagtatc actatttctt gtacaggt 48

<210> 80
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 80
gtttcttggt atcaacaaca cccgggcaag gcgagatctt cacaggtgag 50

<210> 81
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 81
gcaaggcgag atcttcacag gtgag 25

<210> 82
 <211> 67
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<220>
 <221> modified_base
 <222> (24)..(29)
 <223> a, c, t or g

<220>
 <221> modified_base
 <222> (33)..(50)
 <223> a, c, t or g

<400> 82
 gtatcactat ttcttgtaga ggtnnnnnnc tcnnnnnnnn nnnnnnnnnn tggatcaac 60
 aacaccc 67

<210> 83
 <211> 76
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<220>
 <221> modified_base
 <222> (24)..(26)
 <223> a, c, t or g

<220>
 <221> modified_base
 <222> (33)..(35)
 <223> a, c, t or g

<220>
 <221> modified_base
 <222> (42)..(53)
 <223> a, c, t or g

<400> 83
 gtatcactat ttcttgtaga ggtnnntctt ctnnngttgg cnnnnnnnnn nnngtttctt 60
 ggtatcaaca acaccc 76

<210> 84
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 84

gagcagagga cccgggcaag gc

22

<210> 85

<211> 41

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 85

gagcagagga cccgggcaag gcgccgaagt tgatgatcta c

41

<210> 86

<211> 44

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 86

cgtccttctg gtgtcagcaa tcgtttctcc ggatcacagg tgag

44

<210> 87

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 87

cgtttctccg gatcacaggt gag

23

<210> 88

<211> 53

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<220>

<221> modified_base

<222> (20)..(31)

<223> a, c, t or g

<400> 88

gccgaagttg atgatctacn nnnnnnnnnn ncgtccttct ggtgtcagca atc 53

<210> 89

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 89

ctgcaggctg aagacgaggc tgac 24

<210> 90

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 90

ctgcaggctg aagacgaggc tgactactat tgt 33

<210> 91

<211> 57

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 91

gtcttcggcg gtggtaccaa acttactgtc ctcggtcaac ctaaggacac aggtgag 57

<210> 92

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 92

cgtcaacct aaggacacag gtgag 25

<210> 93
 <211> 77
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<220>
 <221> modified_base
 <222> (22)..(36)
 <223> a, c, t or g

<220>
 <221> modified_base
 <222> (40)..(51)
 <223> a, c, t or g

<400> 93
 gacgaggctg actactattg tnnnnnnnnn nnnnnntctn nnnnnnnnnn ngctcttcggc 60
 ggtggtacca aacttac 77

<210> 94
 <211> 74
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<220>
 <221> modified_base
 <222> (22)..(24)
 <223> a, c, t or g

<220>
 <221> modified_base
 <222> (31)..(36)
 <223> a, c, t or g

<220>
 <221> modified_base
 <222> (40)..(48)
 <223> a, c, t or g

<400> 94
 gacgaggctg actactattg tnnnagctat nnnnnntctn nnnnnnnngt cttcggcggt 60
 ggtaccaaac ttac 74

<210> 95
 <211> 627
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: A27: JH1 Kappa
light chain gene with stuffers

<220>

<221> CDS

<222> (206) .. (328)

<220>

<221> CDS

<222> (357) .. (377)

<220>

<221> CDS

<222> (405) .. (470)

<220>

<221> CDS

<222> (501) .. (596)

<400> 95

gaggaccatt gggccccctc cgagactctc gagcgcaacg caattaatgt gagttagctc 60

actcattagg caccocaggc ttacacttt atgcttcggt ctcgtatgtt gtgtggaatt 120

gtgagcggat aacaatttca cacaggaaac agctatgacc atgattacgc caagcttttg 180

agcctttttt ttggagattt tcaac gtg aag aag ctc cta ttt gct atc ccg 232

Met Lys Lys Leu Leu Phe Ala Ile Pro
1 5

ctt gtc gtt cgc ttt tac agc cat agt gca caa tcc gtc ctt act caa 280

Leu Val Val Pro Phe Tyr Ser His Ser Ala Gln Ser Val Leu Thr Gln
10 15 20 25

tct cct ggc act ctt tcg cta agc ccg ggt gaa cgt gct acc tta agt 328

Ser Pro Gly Thr Leu Ser Leu Ser Pro Gly Glu Arg Ala Thr Leu Ser
30 35 40

tagtaagctc ccaggcctct ttgatctg aaa cct ggt cag gcg ccg cgt 377

Lys Pro Gly Gln Ala Pro Arg
45

taatgaaagc gctaattggcc aacagtg act ggg atc ccg gac cgt ttc tct ggc 431

Thr Gly Ile Pro Asp Arg Phe Ser Gly
50 55

tct ggt tca ggt act gac ttt acc ctt act att tct aga taatgagtta 480

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg
60 65 70

actagaccta cgtaacctag ttc ggt caa ggt acc aag gtt gaa atc aag cgt 533

Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
75 80

acg gtt gcc gct cct agt gtg ttt atc ttt cct cct tct gac gaa caa 581
 Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln
 85 90 95

ttg aag tca ggt act acgcatctct aagcggccgc aacaggagga g 627
 Leu Lys Ser Gly Thr
 100

<210> 96

<211> 102

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: A27: JH1 Kappa
 light chain gene with stuffers

<400> 96

Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser
 1 5 10 15

His Ser Ala Gln Ser Val Leu Thr Gln Ser Pro Gly Thr Leu Ser Leu
 20 25 30

Ser Pro Gly Glu Arg Ala Thr Leu Ser Lys Pro Gly Gln Ala Pro Arg
 35 40 45

Thr Gly Ile Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe
 50 55 60

Thr Leu Thr Ile Ser Arg Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
 65 70 75 80

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu
 85 90 95

Gln Leu Lys Ser Gly Thr
 100

<210> 97

<211> 413

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: 2a2: JH2 Human
 lambda-chain gene with stuffers in place of CDRs

<220>

<221> CDS

<222> (30) .. (104)

<220>

<221> CDS

<222> (117) .. (122)

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<220>  
<221> CDS  
<222> (135) .. (152)
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<210> 98
<211> 103
<212> PRT
<213> Artificial Sequence
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<220>

<223> Description of Artificial Sequence: 2a2: JH2 Human
lambda-chain gene with stuffers in place of CDRs

<400> 98

Ser	Ala	Gln	Ser	Ala	Leu	Thr	Gln	Pro	Ala	Ser	Val	Ser	Gly	Ser	Pro
1				5					10					15	

Gly	Gln	Ser	Ile	Thr	Ile	Ser	Cys	Thr	Arg	Ser	Pro	His	Pro	Gly	Lys
		20					25						30		

Ala	Pro	Ser	Asn	Arg	Phe	Ser	Gly	Ser	Lys	Ser	Gly	Asn	Thr	Ala	Ser
		35					40					45			

Leu	Thr	Ile	Ser	Gly	Leu	Gln	Gly	Gly	Gly	Thr	Lys	Leu	Thr	Val	Leu
	50					55					60				

Gly	Gln	Pro	Lys	Ala	Ala	Pro	Ser	Val	Thr	Leu	Phe	Pro	Pro	Ser	Ser
65					70					75				80	

Glu	Glu	Leu	Gln	Ala	Asn	Lys	Ala	Thr	Leu	Val	Cys	Leu	Ile	Ser	Asp
			85						90					95	

Phe	Tyr	Pro	Gly	Ala	Val	Thr
			100			

<210> 99

<211> 10

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 99

ctgtctgaac